

Decommissioning a Radium Facility for Unrestricted Use

The Flannery (Vanadium) Building, located in Pittsburgh, PA, has a long history with radium production and use. Built circa 1911 by Mr. Joseph Flannery, President of the Vanadium Corp. of America and the Standard Chemical Company (SCC), the building was a major processing and refining facility for radium from the SCC- Canonsburg, PA facility through the 1920's and 30's. Flannery pioneered the first major commercial production of radium from U.S. ores. Refinement into self-luminous paint and concentrated radium compounds for medical, industrial and commercial uses were carried out in the fifth floor facilities of the building. At one time the Flannery Building was said to contain the major portion of the world's inventory of processed radium. News articles from 1921 showed photographs of a visit by Madam Marie Curie. An estimated 180 grams (or curies) of radium-226 was refined in this facility.

As a result of radium production, residual radium contamination existed on all levels, including the roof. After use as a radium production facility, the building passed through numerous owners and most recently was utilized primarily as office space. Interaction through the 1960's and 70's between the state regulatory agency and property owners led to limited decontamination efforts in selected areas of the building. However, due to the lack of a formal radioactive materials license being in place and no approved decommissioning plan, a comprehensive characterization or decontamination was not carried out during that time.

A local banking institution purchased the building in the 1980's and operated a branch of their bank on the ground floor for many years. Following a failed sale of the building by the bank to another business, involving litigation over the presence of residual radium contamination, the Pennsylvania Department of Environmental Protection (PADEP) Bureau of Radiation Protection (BRP) was asked to provide guidance that would lead to an unqualified unrestricted release for

the building. The owner agreed to accept the issuance of a decommissioning license by PADEP/BRP that stipulated the restrictive cleanup criteria prescribed in Regulatory Guide 1.86 and NUREG/CR-5849.

PADEP/BRP gave this remediation project priority attention in early 2003, providing guidance to the licensee to ensure this building would finally be cleaned up, after more than 80 years of being contaminated. The licensee worked closely with PADEP/BRP staff to reach the agreed-upon clean-up criteria. It was necessary to use a special approach in certain areas of the building in order to obtain an unrestricted release. Portions of the building could not be remediated to the original release criteria due to issues with structural integrity, inaccessibility, and/or safety concerns. These areas required a special set of dose assessments to evaluate each area of concern. The license was terminated in September 2003 after meeting the criteria. In 2004, the bank sold this building to a local developer for use as an upscale restaurant and office space. This successful remediation project ensures this historic building will remain in productive use for future generations.

[Statement by R. Maiers for 10/18/05 NRC Commission Briefing]